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SOME OMICRINI FROM THE ORIENTAL AND PACIFIC REGIONS (COLEOPTERA: HYDROPHILIDAE: SPHAERIDIINAE)

STANLEY E. MALCOLM

Biol. Sciences Group, The Univ. of Connecticut, Storrs 06268

Smetana's (1975) recognition and erection of the tribe Omicrini have been catalytic to my study of sphaeridiine phylogeny. I have elaborated on his tribal description and emended his list of included genera (Malcolm, 1980). The following new species were discovered in the course of identifying material for the Bernice P. Bishop Museum and British Museum (Natural History). The description of the aedeagus of *Omicrus brevipes* Sharp comes about as the result of my wish to compare the Marquesan specimens with *O. brevipes,* the only *Omicrus* previously known from the Pacific Region. Fifteen other species are known from the neotropics (Smetana, 1975). That new species of *Omicrus* should be found on Pacific islands is not surprising; their occurrence in rotting wood and other decaying plant material would seem to make them excellent candidates for dispersal by rafting. The same might be said for many other taxa of Sphaeridiinae, particularly some other Omicrini, which appear to have radiated widely throughout Indonesia and other Pacific island groups. It is in the Pacific and Oriental Regions that one must look for insight into the evolutionary history of Omicrini.

Omicrus brevipes Sharp, 1879

Smetana (1975) based his redescription of *Omicrus brevipes* Sharp on two of the three specimens in the original series. He did not figure the male genitalia, as one specimen appeared to be a female and he preferred not to dissect the lectotype. I was able to examine the third specimen of *O. brevipes* through the courtesy of the British Museum (Natural History). Imagine my surprise to find it a male, with the aedeagus already dissected out and preserved in glycerin. The specimen is labeled: "♂"/"Hawaiian Is. Rev. T. Blackburn. 1888–30"/"Omicrus brevipes." Although partly dissected, its length is about 1.45 mm, its width is 0.98 mm. In external characters the specimen agrees with Smetana's redescription. I do not doubt that it is conspecific with the two specimens examined by Smetana. The aedeagus (Fig. 1A) is 0.67 mm long, the basal piece proportionally much longer than in any other known *Omicrus,* and the parameres strongly curved ventrally at their tips.

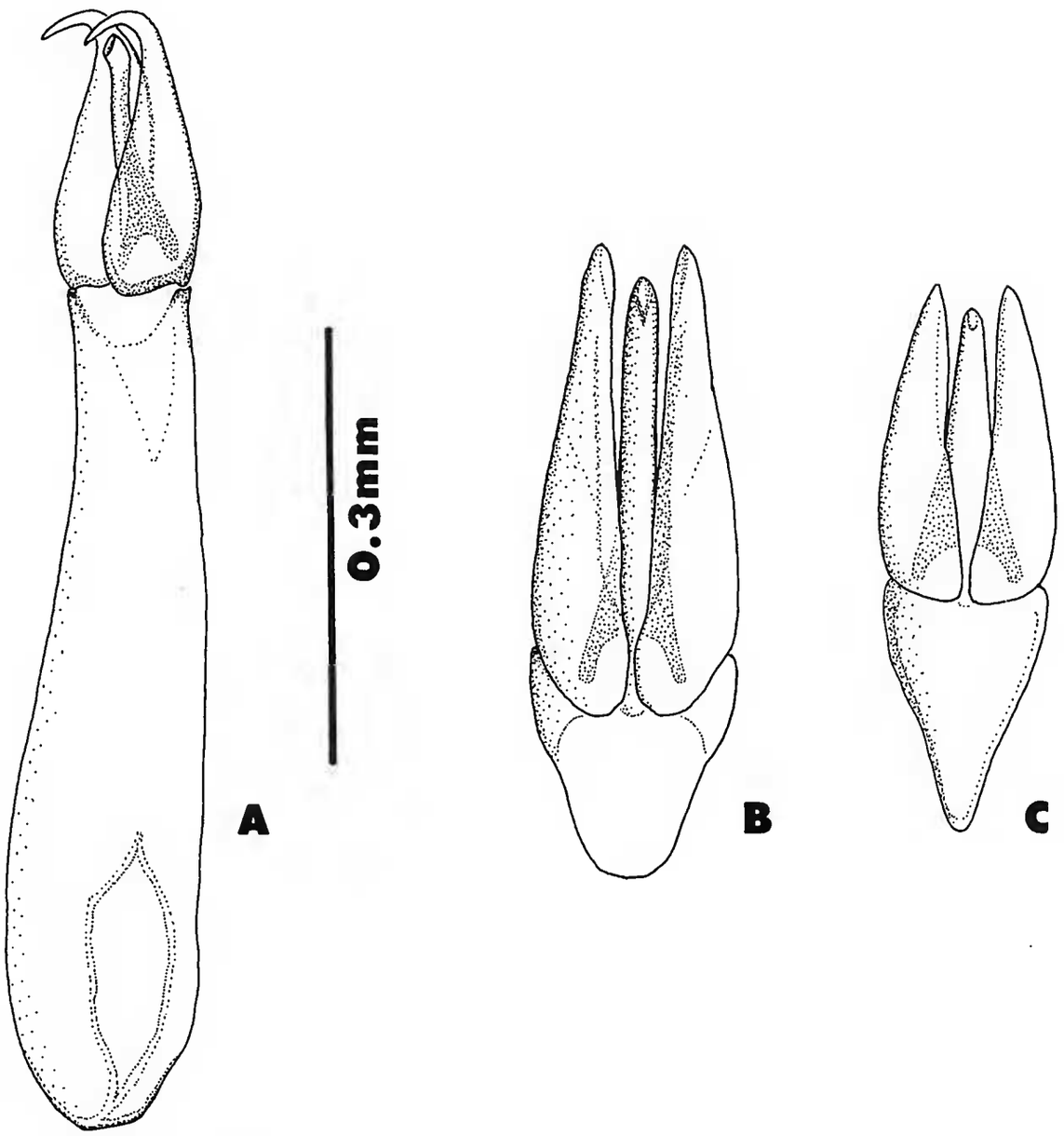

Fig. 1. Male genitalia of *Omicrus*: A, *O. brevipes* Sharp; B. *O. smetanai* new species; C, *O. milleri* new species.

Omicrus smetanai, new species

Holotype.—Male; Marquesas Islands, Temetiv Ridge, Hivaoa, 3900 ft, 14-1-1932, Le Bronnec Coll., Pacific Entom. Survey (Bernice P. Bishop Museum).

Length 1.97 mm; width 1.41 mm; head rufobrunneus, slightly lighter anteriorly, sparsely finely punctate, without trace of microsculpture; antennae, maxillary palps, and labrum testaceous; pronotum rufobrunneus, with few widely separated fine punctures, microsculpture barely visible as fine waves laterally; scutellum with a few very fine punctures; elytra rufobrunneus except lighter at extreme apex, punctation slightly coarser and more dense than on pronotum, especially laterally, microsculpture virtually obsolete as on pronotum; thoracic sterna dark rufobrunneus, mesosternal elevation

rather narrow basally, elevated middle portion of metasternum sparsely punctate, each moderate-sized puncture bearing a long golden seta, metasternum microreticulate laterally; legs rufotestaceous, tarsi fringed with long golden setae below, first hind tarsal segment about equal to second; abdomen rufobrunneus, microreticulate; aedeagus as in Fig. 1B.

Paratypes.—4 specimens (one ♂, the others not dissected), same data as holotype (Bernice P. Bishop Museum); 1 specimen (sex not determined), same data as holotype, (retained by the author).

This is the largest *Omicrus* species yet described, averaging 2.10 mm long (range 1.97–2.25 mm) and 1.46 mm wide (range 1.39–1.52 mm). Of the neotropical species it most nearly resembles *O. laevis* (Sharp), from which it can be distinguished by its larger size and aedeagus with shorter basal piece. The wings are reduced to functionless slips. Paratype labels include habitat as "in rotting leaves." The species is named for Dr. Aleš Smetana in recognition of his contributions to the knowledge of Hydrophilidae, especially Omicrini.

Omicrus milleri, new species

Holotype.—Male; Marquesas Islands, Temetiv Ridge, Hivaoa, 3900 ft, 14-1-1932, Le Bronnec Coll., Pacific Entom. Survey, in rotting leaves (Bernice P. Bishop Museum).

Length 1.56 mm; width 1.07 mm; head rufopiceous, punctures of moderate size separated by spaces 2 or 3 times their diameter, microsculpture of irregular waves visible on clypeus, obsolete on vertex; antennae, maxillary palps, and labrum testaceous; pronotum rufobrunneus, appearing almost impunctate, punctures very sparse and fine, microsculpture barely visible as rudimentary irregular waves; scutellum with a few punctures slightly coarser than those on pronotum; elytra rufobrunneus, diffusely lighter posterolaterally, punctures uniformly moderately coarse, tending to be arranged in distinct rows laterally, punctation of intervals equally coarse but less regular in pattern, microsculpture lacking; thoracic sterna rufobrunneus, mesosternal elevation rather narrow, distinctly lanceolate raised along midline, elevated middle portion of metasternum sparsely finely punctate except at base, each puncture bearing a long golden seta, metasternum microreticulate laterally; legs fuscotestaceous, tarsi fringed with long golden setae below, first hind tarsal segment about equal to second; abdomen rufotestaceous, microreticulate; aedeagus as in Fig. 1C.

Paratypes.—8 specimens (sex not determined), same data as holotype (Bernice P. Bishop Museum); 2 specimens (sex not determined), same data as holotype (retained by the author).

Average length is 1.67 mm (range 1.56–1.85 mm), average width 1.09 mm

(range 0.98–1.23 mm). This species superficially resembles *O. brevipes,* particularly in the coarseness of elytral punctation, but differs in the lack of strong pronotal microsculpture and in the form of the male genitalia. The wings are reduced to functionless slips. The species is named for Dr. David C. Miller, who introduced me to the study of Hydrophilidae and who pointed out the series of the Bishop Museum collection on which this and the previous species are based.

Peratogonus grandis, new species

Holotype.—Sex not determined; Sikkim: Gopaldhara, Rungbong Vall., H. Stevens (British Museum (Natural History)).

Length 2.21 mm; width 1.64 mm; head piceous, finely microreticulate, finely densely punctate; labrum rufotestaceous; antennae and maxillary palps testaceous; pronotum rufopiceous, microreticulate as head, punctures slightly coarser, more widely separated than on head; elytra rufopiceous, 10-striate, striae deeply impressed except on disc, intervals shining, very sparsely, minutely punctate; ventral surface rufobrunneus, microreticulate; mesosternal elevation very broadly pentagonal, anterior margin raised, distance between mesocoxae equal to width of coxa; metasternum excavated laterally for reception of mesotibiae, medially finely, densely punctate, punctures becoming less dense and much coarser laterally; 1st abdominal sternum longitudinally carinate; legs rufobrunneus; profemora microreticulate, angulate at apex of trochanter, grooved anteriorly for reception of tibiae, slightly concavely bowed posteriorly; protibiae grooved externally for reception of tarsi; meso- and metafemora having microsculpture consisting of short lines parallel to the length of the femur; tarsi short, not very hairy, first segment about equal to second.

I have before me one specimen of *P. reversus* Sharp, lent me by the Institut royal des Sciences naturelles de Belgique, determined by Armand d'Orchymont. In comparison, *P. grandis* is much larger (the specimen of *P. reversus* measures 1.72 mm long and 1.31 mm wide) and has more and finer punctures laterally on the metasternum (the punctures of *P. reversus* are exceptionally large and deep).

Peratogonus and the closely related genus *Noteropagus* were placed in Megasternini by d'Orchymont (1919), primarily on characters of sternal morphology. I find *Noteropagus* and *Peratogonus* (hereafter abbreviated N & P) to belong to Omicrini for the following reasons:

1. N & P possess the depressed explanate clypeus of Omicrini, although this condition is partly masked by the development in most species of a false clypeal margin. The explanate clypeus is a key synapomorphy defining Omicrini.

2. N & P share with Omicrini the possession of a bifurcate vein Cu 2 in the flight wing. They, and all Omicrini, lack the pre-apical spur on the M-Cu loop found in Cercyonini and Megasternini.

3. N & P have distinct elytral epipleura in the basal half, a plesiomorphic condition. Megasternini are apomorphic for the loss of epipleura.

4. N & P have elytral punctation of a derived omicrine type, that is, all series follow the curve of the elytral convexity. Thus lateral striae end progressively further anterior of the elytral tip. In Megasternini the lateral series are parallel to the elytral margin.

5. N & P have the profemoral base angulate in common with Omicrini, but not Megasternini.

6. N & P lack the secondarily derived suture between frons and clypeus common to all Megasternini except *Megasternum*.

7. N & P lack the femoral lines of all Megasternini except *Megasternum* and *Emmidolium* (which appear to have lost them secondarily).

8. The pentagonal mesosternum and elevated prosternum by which N & P were placed in Megasternini are found also in some Omicrini, and approximated in some Cercyonini and Sphaeridiini.

d'Orchymont (1919) separated *Noteropagus* from *Peratogonus,* stating that the former were smaller, with body form more oblong, more depressed, and less globose, without a series of larger punctures against the posterior margin of the pronotum, with the elytra finely seriatopunctate (rather than distinctly striate), and with epipleura more visible up to the sutural angle. While the described species of *Noteropagus* are all smaller than those of *Peratogonus,* and while the other characters hold in most cases, it is not apparent that these features warrant generic status for *Noteropagus*. I propose that *Noteropagus* be retained pending further study of the hydrophilid fauna of the Pacific and Oriental Regions, where I have no doubt more species await description.

Ischyromicrus, new genus

Etymology.—"Stubborn *Omicrus*": combining reference to the difficulty in determining the relationships of the genus (Ischyros = stubborn *Gr*) and the type-genus of Omicrini. Gender: Masculine.

Type-species.—I. julieae new species

Form oval, moderately convex; antennae 9 segmented (6 + 3), first segment elongate, segments 3–5 minute, club moderately compact, pubescent; clypeus strongly depressed and explanate immediately anterior to antennal bases; maxillary palpi shorter than antennae, 2nd (pseudobasal) segment slightly swollen, 3rd and 4th segments about equal, shorter than 2nd; eyes located on lateral angular prominences of head, not emarginate anteriorly; labrum visible, emarginate medially, fringed with setae; labium and maxillae

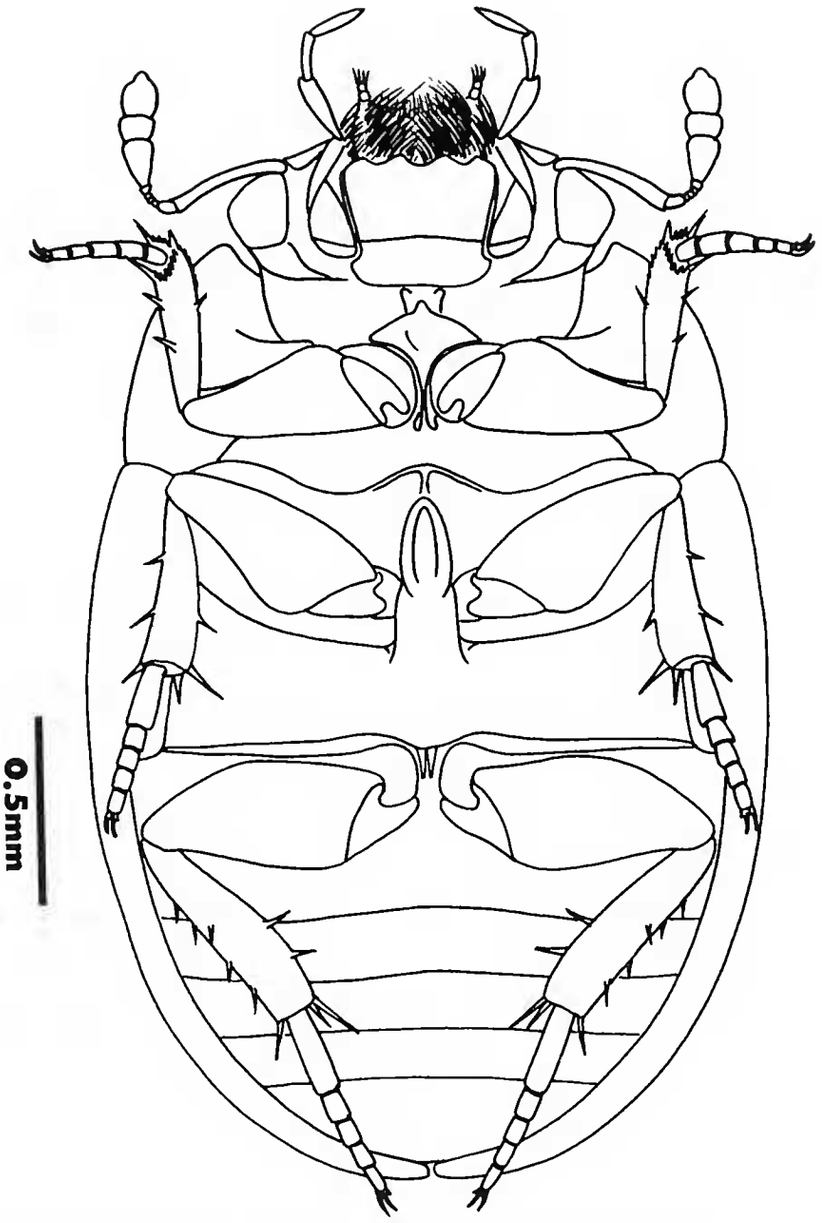

Fig. 2. *Ischyromicrus julieae* new species, Holotype, Ventral View.

separated from posterior head region by a transverse groove, submentum obliquely sloping, entire labium slightly concave below for reception of median prosternal projection; labial palps of moderate length; maxillae, labium, and labial palps fringed with setae; pronotum convex to margin, not explanate, deeply emarginate anteriorly for reception of head; prosternum very short, almost vertical anterior to coxae, raised strongly towards medial rounded prominence, median projection with a short spine anteriorly, narrowly carinate raised between coxae, carina split posteriorly; mesosternum elevated medially in the form of a flat plate, grooved longitudinally, convexly narrowed to a point anteriorly, broadly contacting metasternal projection posteriorly; metasternum linearly raised medially, projecting between mesocoxae, mesocoxae appearing moderately widely separated, actually close together under metasternal projection, metepisterna not nar-

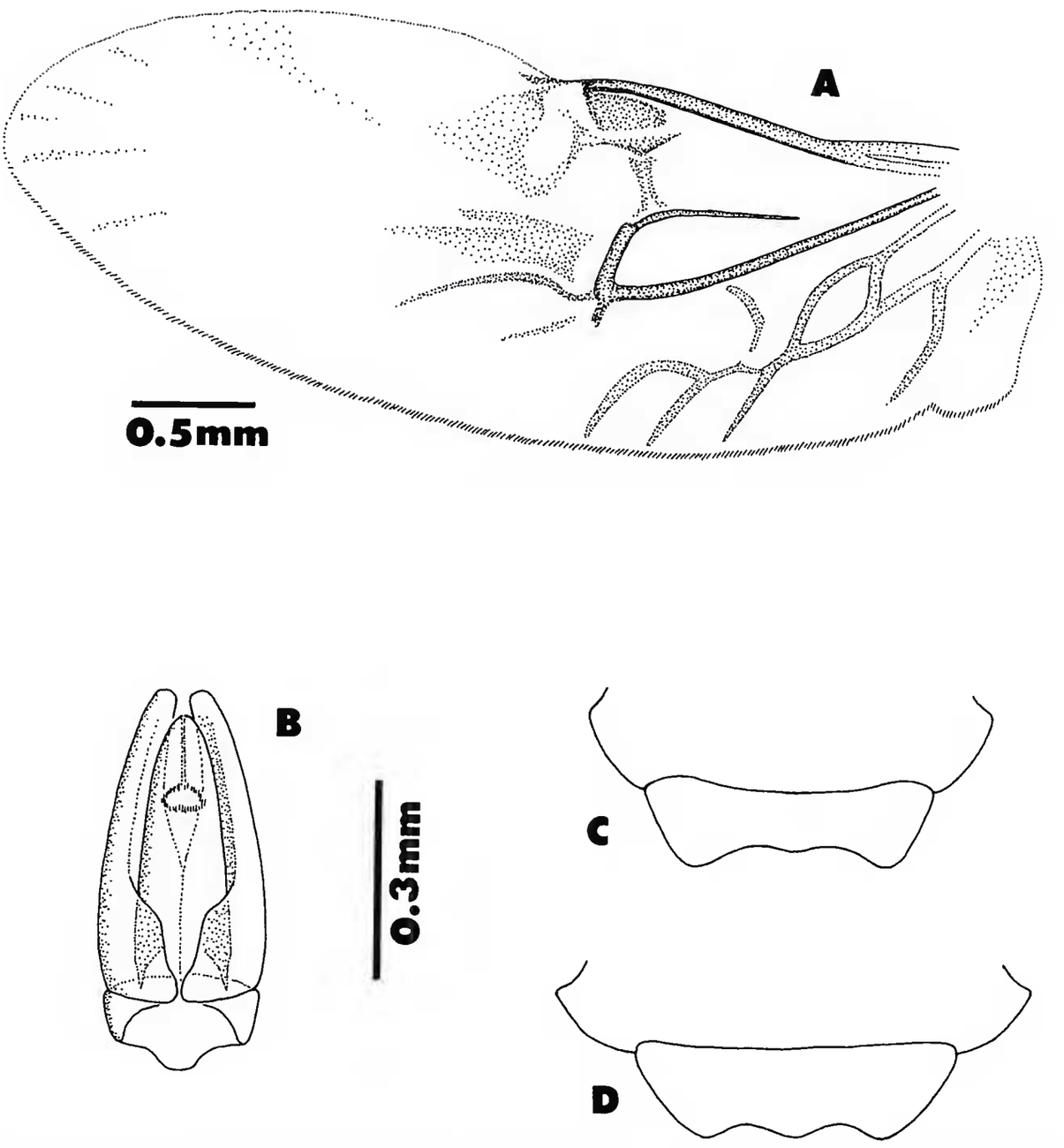

Fig. 3. A–C, *Ischyromicrus julieae* new species: A, wing venation; B, male genitalia; C, labrum. D, *I. cognitus* new species: labrum.

rowed; elytra with sutural stria in apical half, otherwise not striate but with 10 rows of punctures, epipleura broad from base to apex, broadest in basal third; wing venation as in Fig. 3A, two closed cells in cubito-anal region, jugal lobe weakly defined but present; tarsi long, hind tarsi as long as tibiae, 1st hind tarsal segment about equal to 2, 3, and 4 together; 1st abdominal sternum not longitudinally carinate.

Ischyromicrus presents a suite of characters, some quite generalized, others autapomorphic, which at first obscured the affinities of the genus. Nevertheless I am convinced that the genus is omicrine, resembling most closely the genera *Heteryon* Sharp and *Oreomicrus* Malcolm. *Ischyromicrus* is placed in Omicrini based on its possession of an explanate clypeus, its eyes

on lateral angular prominences of the head, and its metasternum prolonged between the mesocoxae. Like *Heteryon* and *Oreomicrus* the 1st abdominal sternum is not longitudinally carinate, the prosternal projection is split behind the coxae, the profemora are not angulate at their base, the submentum is not perpendicular, and, like *Heteryon,* the elytral punctation pattern is simple. Although the antennae are 9 segmented, segments 3–5 are minute, perhaps a precursor to the loss of one segment as in *Heteryon* and *Oreomicrus*. The antennal clubs are similarly shaped in all three genera. The long 1st hind tarsal segment is an apomorphic condition found in no other omicrine genus, where the rule is short tarsi with the first segment about equal to the second. The flight wing has two closed cells in the cubito-anal region, a plesiomorphic condition. In Sphaeridiinae, exclusive of Rygmodini, I have found two closed cells only in *Omicrus* sp. and in *Andotypus ashworthi* Spangler (1979) of the Sphaeridiini. *Ischyromicrus* possesses autapomorphically derived pro- and mesosterna. The mesosternal projection is reminiscent of that found in Cercyonini, yet differs by being longitudinally grooved and closely joined to the metasternum between rather than behind the mesocoxae.

Ischyromicrus julieae, new species
(Fig. 2)

Holotype.—Male; North Borneo (SE), Forest Camp, 9.8 km SW of Tenom, 19.XII.1962, Y. Hirashima Collector, Bishop (Bernice P. Bishop Museum).

Length 2.95 mm; width 1.80 mm; head brunneus, moderately, finely punctate, each slit-like puncture with a minute hair-like projection; labrum, maxillary palps, and antennae testaceous, except antennal club fuscous, labrum with single emargination (Fig. 3C); pronotum light brunneus, punctures as on head; scutellum impunctate; elytra light brunneus, puncture rows very fine, intervals with still finer punctures irregularly placed; ventral surface light brunneus, microreticulate, mesosternal elevation about twice as long as wide, metasternal projection slightly narrowed anteriorly; legs brunneus; aedeagus as in Fig. 3B.

Paratype.—1 female; length 3.03 mm, width 1.97 mm, same data as holotype, Bernice P. Bishop Museum.

The species is named for Ms. Julie Ramsey, who has been a constant source of encouragement to me over the last two years.

Ischyromicrus cognitus, new species

Holotype.—Female; Haut Mekong, Muong Sing (North Vietnam), 18.IV.1918, R. V. de Salvaza, Brit. Mus. 1921–89 (British Museum (Natural History)).

Length 3.44 mm; width 2.05 mm; head rufopiceous, moderately, finely punctate, punctures round, not slit-like; labrum, maxillary palpi, and antennae rufobrunneus, except antennal club fuscous, labral emargination deeper on each side of midline (Fig. 3D); pronotum rufopiceous, punctures as on head; scutellum impunctate; elytra rufopiceous, fading to rufobrunneus posteriorly, puncture rows fine on disc, becoming larger laterally and posteriorly, intervals with much finer punctures irregularly placed, elytra slightly explanate posterolaterally; ventral surface rufopiceous, microreticulate, mesosternal projection about three times as long as wide, narrowed slightly posteriorly, metasternal projection fairly narrow, only barely overlapping coxae; legs rufopiceous.

This species is easily separated from *I. julieae* by its narrower mesosternal projection, coarser elytral punctation, and doubly emarginate labrum.

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